REMARKS

Upon entry of this amendment, claims 1-52 are all the claims pending in the application. New claims 43-52 are added. No new matter is added.

Applicants thank the Examiner for acknowledging the claim to foreign priority and for confirming that the certified copy of the priority document was received.

Applicants also thank the Examiner for initialing the references listed on form PTO-1449 submitted with the Information Disclosure Statement filed on July 23, 2001.

The Abstract of the Disclosure is objected to for the reasons set forth at page 2 of the Office Action. Applicants are amending the Abstract to overcome this objection.

I. Claim Rejections under 35 U.S.C. § 102(b)

Claims 1-5, 21, 23, 26, 28, 31, 32, 35 and 37-42 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nanto (U.S. Patent. No. 5,952,782). Applicants respectfully traverse this rejection on the following basis.

Claim 1 defines a novel combination of elements which form a plasma display panel. By way of example, claim 1 requires column ribs and row ribs which define pixel cells in a column direction and in a row direction. Applicant submits that the claimed combination, including at least this feature, is neither disclosed nor suggested by Nanto.

In contrast to the claimed invention, Nanto discloses ribs extending in only one direction. Nanto discloses at column 6, lines 38-42, that "there are no barrier ribs for defining the discharge space 30 along the columns for a matrix display..." As clearly seen in figure 1B, the barrier ribs 29 run in only one direction.

Therefore, Applicant respectfully submits that Nanto fails to disclose or suggest column ribs and row ribs which run in a column direction and a row direction, as is required by claim 1. By providing row ribs and column ribs in the plasma display panel, it is possible to provide a large opening portion with an increased intensity and luminous efficiency for each pixel.

In addition, claim 1 recites the feature of at least part of the display electrode portion having a notched portion or a cut-away portion between pixel cells adjacent to each other in the row direction, thereby providing each pixel cell with individually separated electrodes. Applicant submits that Nanto also fails to disclose or suggest this feature of claim 1.

Indeed, the Examiner has not pointed to any structure in Nanto which corresponds to a notched portion or cut-away portion. By providing a notched portion or cut-away portion between pixel cells, it is possible to suppress a discharge at the plane discharge electrodes in the vicinity of the ribs, and therefore, improve luminous efficiency.

Based on the foregoing, Applicants respectfully request that the rejection of claim 1 be reconsidered and withdrawn. If the Examiner persists in this rejection, Applicants respectfully request that the Examiner particularly point out the structure in Nanto which corresponds to the above discussed features.

Regarding claim 4, the Examiner asserts that the limitation of encapsulating the substrates in a vacuum is a product by process limitation. Therefore, the Examiner has not afforded the limitations of claim 4 patentable weight. Applicants respectfully disagree. Contrary to the assertion of the Examiner, claim 4 is not in product by process format. Rather, claim 4 is a method claim which positively recites method steps for fabricating the plasma display panel of claim 1. Applicants submit that claim 4 is a proper dependent claim and thus the features of claim 4 must be afforded patentable weight.

Furthermore, the format of claim 4 is specifically permitted by the MPEP. "The fact that the independent and dependent claims are in different statutory classes does not, in itself, render the latter improper. Thus, if claim 1 recites a specific product, a claim for the method of making the product of claim 1 in a particular manner would be a proper dependent claim since it could not be infringed without infringing claim 1." See MPEP § 608.01(n). Accordingly, Applicants respectfully request that the Examiner withdraw the rejection and examine the claimed features on their merits.

II. Claim Rejections under 35 U.S.C. § 103(a)

Claims 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Nakajima (U.S. Patent. No. 5,557,168). Claims 6-8 ultimately depend from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Nakajima. Accordingly, Applicants submit that these claims are patentable at least by virtue of their dependency.

Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Nakajima and Tanabe (U.S. Patent. No. 5,889,365). Claims 9 and 10 ultimately depend from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Nakajima and Tanabe. Accordingly, Applicants submit that these claims are patentable at least by virtue of their dependency.

Claims 11-15 and 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Nakajima and Matsuzaki (U.S. Patent. No. 5,939,828). Claims 11-15 and 17-19 ultimately depend from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Nakajima and Matsuzaki. Accordingly, Applicants submit that these claims are patentable at least by virtue of their dependency.

Claim 16 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Nakajima and Asano (U.S. Patent. No. 6,008,582). Claim 16 ultimately depends from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Nakajima and Asano. Accordingly, Applicants submit that claim 16 is patentable at least by virtue of its dependency.

Claim 20 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Nakajima and Fukuta (U.S. Patent. No. 6,037,713). Claim 20 ultimately depends from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Nakajima and Fukuta. Accordingly, Applicants submit that claim 20 is patentable at least by virtue of its dependency.

Claims 22, 27, 33 and 34 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto. Claims 22, 27, 33 and 34 depend from independent claim 1. Applicants submit that Nanto does not teach or suggest the deficient features discussed above regarding claim 1. Accordingly, Applicants submit that these claims are patentable at least by virtue of their dependency.

Claims 24 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Matsuzaki. Claims 24 and 29 ultimately depend from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Matsuzaki. Accordingly, Applicants submit that these claims are patentable at least by virtue of their dependency.

Claims 25 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Fukuta. Claims 25 and 30 ultimately depend from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Fukuta. Accordingly, Applicants submit that these claims are patentable at least by virtue of their dependency.

Claim 36 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Nanto in view of Horio (U.S. Patent. No. 4,629,942). Claim 36 ultimately depends from independent claim 1. Applicants submit that the deficiencies discussed above regarding Nanto are not overcome by Horio. Accordingly, Applicants submit that claim 36 is patentable at least by virtue of its dependency.

III. New Claims

New claims 43-52 have been added. Applicants respectfully submit that new claims 43-52 patentably distinguish over the cited art based on the combination of features contained therein. New claim 52 corresponds to original claim 1 and is patentable for at least the same reasons as discussed above with respect to claim 1.

IV. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Submitted herewith is an Excess Claim Fee Payment Letter with fee.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) An AC plane discharge plasma display panel comprising:

a front substrate;

a rear substrate;

a sealing portion [for encapsulating] operable to encapsulate said front substrate and said rear substrate at a peripheral edge portion thereof to seal a discharge gas therein;

column ribs and row ribs [for defining] operable to define pixel cells in a column direction and in a row direction, respectively, to thereby define the pixel cells in a matrix; and

plane discharge electrodes having a display electrode portion and a bus electrode portion,

wherein the display electrode portion comprises sustain electrodes and scan electrodes and the bus electrode portion comprises sustain-side bus electrodes and scan-side bus electrodes, and

wherein at least part of the display electrode portion [of said plane discharge electrodes having] has a notched portion or a cut-away portion between pixel cells adjacent to each other in the row direction, thereby providing each pixel cell with individually separated electrodes [said plane discharge electrodes having a pair of a sustain electrode and a scan electrode placed in one pixel cell, and for neighboring pixel cells arranged in the column direction, sustain electrodes

and scan electrodes are disposed to allow respective sustain electrodes and scan electrodes to be adjacent to each other between neighboring pixel cells].

4. (Amended) A method for fabricating the plasma display panel [according to] of claim 1, comprising the steps of:

encapsulating said rear substrate and said front substrate in a vacuum, and

sealing a discharge gas in the panel continually thereafter without exposing the interior of the panel to the atmosphere.

5. (Amended) The plasma display panel according to claim 1, wherein said column ribs and row ribs form [further comprising] lattice-shaped ribs [formed] and are provided on said rear substrate.

11. (Amended) The plasma display panel according to claim 6, further comprising horizontal barrier walls having a thickness of 2 to 50μm between pixel cells, said horizontal barrier walls being formed in parallel to the bus [electrodes] electrode portion.

12. (Amended) The plasma display panel according to claim 11, wherein said horizontal barrier wall is formed of a material having a dielectric constant lower than that of [the] an insulating layer provided on said front substrate.

13. (Amended) The plasma display panel according to claim 11, wherein said horizontal barrier wall is placed only between the sustain-side bus electrodes [one of the sustain electrodes or the scan electrodes between pixel cells extending in the longitudinal column direction].

14. (Amended) The plasma display panel according to claim 11, wherein said horizontal barrier walls between the sustain-side bus electrodes and between the scan-side bus electrodes [on the sustain electrode and the scan electrode] have different widths.

15. (Amended) The plasma display panel according to claim 11, wherein the horizontal barrier walls are provided with [further comprising] an extended portion formed orthogonal to the longitudinal direction of the horizontal barrier wall, said extended portion being disposed between pixel cells adjacent to each other in the longitudinal row direction.

16. (Amended) The plasma display panel according to claim 6, wherein said column ribs and row ribs form [further comprising] lattice-shaped ribs [formed] and are provided on the rear substrate, wherein a rib portion extending in the longitudinal row direction for defining pixel cells is higher than a rib portion extending in the longitudinal column direction for defining pixel cells.

17. (Amended) The plasma display panel according to claim 11, wherein a pair of sustain-side bus electrodes or scan-side bus electrodes are not overlapped by the horizontal

barrier but are overlapped by each of said ribs [a bus electrode constituting the plane discharge electrode does not overlap the horizontal barrier wall but overlaps the rib].

18. (Amended) The plasma display panel according to claim 11, wherein a pair of sustain-side bus electrodes or scan-side bus electrodes is not overlapped by each of said ribs but is overlapped by the horizontal barrier[a bus electrode constituting the plane discharge electrode does not overlap the rib but overlaps the horizontal barrier].

19. (Amended) The plasma display panel according to claim 11, wherein each of said ribs and the horizontal barrier overlap a pair of sustain-side bus electrodes or scan-side bus electrodes [bus electrode constituting the plane discharge electrode is located so as to overlap the horizontal barrier wall and the rib].

20. (Amended) The plasma display panel according to claim 6, wherein the sustain-side bus electrodes and the scan-side bus [electrode has] electrodes have a thickness of 10 to 50μm, and the thickness of the sustain-side bus electrode and the scan-side bus [electrode] electrodes causes a raised portion of thickness 2 to 50μm to be formed on the surface of [the] an insulating layer provided on said front substrate.

21. (Amended) The plasma display panel according to claim 1, comprising a metal electrode connecting the [sustain] sustain-side bus electrodes to each other.

22. (Amended) The plasma display panel according to claim 1, comprising a transparent electrode connecting the [sustain] sustain-side bus electrodes to each other.

23. (Amended) The plasma display panel according to claim 1, wherein the [sustain] sustain-side bus electrodes are connected to each other to act as an integrated common bus electrode.

25. (Amended) The plasma display panel according to claim 23, wherein the common bus electrode has a thickness of 10 to 50μm, and the thickness of the common bus electrode causes a raised portion of thickness 2 to 50μm to be formed on the surface of [the] an insulating layer provided on said front substrate.

26. (Amended) The plasma display panel according to claim 1, comprising a metal electrode connecting the [scan] scan-side bus electrodes to each other.

27. (Amended) The plasma display panel according to claim 1, comprising a transparent electrode connecting the [scan] scan-side bus electrodes to each other.

28. (Amended) The plasma display panel according to claim 1, wherein the [scan] scan-side bus electrodes are connected to each other to act as an integrated common bus electrode.

30. (Amended) The plasma display panel according to claim 28, wherein the common bus electrode has a thickness of 10 to 50μm, and the thickness of the common bus electrode causes a raised portion of thickness 2 to 50μm to be formed on the surface of [the] an insulating layer provided on said front substrate.

37. (Amended) The plasma display panel according to claim 1, wherein the plane discharge [electrode is] electrodes are constructed so as to allow pixel cells disposed in the longitudinal column direction to have centers of light emission at equal intervals.

38. (Amended) The plasma display panel according to claim 1, comprising [a] horizontal black stripes [stripe] disposed [between plane discharge electrodes or] in the row direction [including the plane discharge electrode].

40. (Amended) The plasma display panel according to claim 38, wherein [a] the horizontal black stripes overlap [horizontal black stripe, a horizontal first stripe made up of a scan electrode having a black or gray display side] neighboring scan-side bus electrodes in the column direction, and [a horizontal second stripe made up of a black or gray] wherein the horizontal black stripes and a common bus electrode have the same width and are disposed at equal intervals in the column direction.

41. (Amended) The plasma display panel according to claim 38, wherein said scan electrodes and sustain electrodes are formed on said first substrate, and said horizontal black stripes are formed on the scan electrode and the sustain electrode.

42. (Amended) The plasma display panel according to claim 41, wherein a hole or notch is formed on the horizontal black [stripe] stripes to ensure electrical connection of the scan electrode or the sustain electrode to the bus electrode portion.

Claims 43-52 are added as new claims.

IN THE ABSTRACT OF DISCLOSURE:

The abstract is changed as follows:

Ribs for defining pixel cells are formed in the shape of a lattice, and sustain electrodes and scan electrodes are disposed near the ribs. The electrodes are spaced apart in each pixel cell, and the sustain electrode and the scan electrode are each cut away between pixel cells arranged in the row direction to provide each pixel cell with individually separated electrodes. In addition, between pixel cells adjacent to each other in the row direction, the sustain electrodes and the scan electrodes are connected to each other by means of a sustain-side bus electrode and a scan-side bus electrode, respectively. This makes it possible to provide a high luminous efficiency. [Furthermore, each pixel cell is provided with a wide distance between the electrodes and thereby with a large effective opening portion. Thus, this provides only a small amount of

reduction in intensity when the electrodes are spaced apart between the pixel cells arranged in the row direction in order to increase the luminous efficiency. The sustain electrodes or the scan electrodes can be connected to each other or shared between pixel cells adjacent to each other in the column direction and thus the effective opening portion can be made larger, thereby making it possible to provide a further increased intensity and luminous efficiency.]